

CRUISE REPORT

Southeast Fishery-Independent Survey (SEFIS)

R/V *Savannah* Cruise SH-12-35
18 – 27 September 2012
Total Number of Sea Days - 10

U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Southeast Fisheries Science Center
Beaufort Laboratory
101 Pivers Island Rd.
Beaufort, NC 28516

101 camera-trap deployments
18 CTD casts

INTRODUCTION

The R/V *Savannah* departed Savannah, GA, on 18 September 2012 for a Southeast Fishery-Independent Survey (SEFIS) research cruise in continental shelf and shelf-break waters off the southeastern US. SEFIS was created by the National Marine Fisheries Service in 2010 and is run out of the Beaufort Laboratory. This survey conducts applied fishery-independent sampling and related research focusing on the assessment of spatial variability in distribution and abundance of red snapper and other reef species within the snapper-grouper complex, via data collected from fish traps, video cameras, and acoustics. During this survey, chevron trap catches and associated underwater video recordings were collected from randomly selected stations on known hardbottom habitats between 28.83° and 31.59° N. A total of 101 stations were sampled with camera-trap gear over 10 sea days between 17 and 64 meter depths.

OBJECTIVES

1. Increase the spatial footprint and sample size of fishery-independent sampling in US southeast waters. Baited chevron traps, with 2 or 3 mounted high-definition video cameras, were utilized for (a) hardbottom reef fish community assessments, (b) collection of reef fish for biological samples (e.g., otoliths and gonads), and (c) comparative gear sampling (cameras versus traps).
2. Use video cameras on chevron traps to address trap selectivity issues, locate and describe hardbottom habitats, and provide an additional index of abundance for stock assessments.
3. Use a CTD instrument package to collect environmental data (temperature, salinity, dissolved oxygen, and turbidity) at camera-trap sampling locations.
4. Conduct camera-trap sampling in Gray's Reef National Marine Sanctuary.

METHODS

Camera-Trap Sampling

Camera-trap gear consisted of two or three high definition video cameras mounted to a chevron fish trap. Chevron traps were constructed out of plastic-coated wire mesh. A Canon® camera (model HF S200) was attached above the mouth of the trap, and a GoPro® camera (model HD Hero with a flat-lens housing) was attached above the nose of the trap (Figure 1). Additionally, some traps had a third camera (GoPro) attached to the side of the trap, looking inward towards the mouth opening, so that reef fish entries and exits could be recorded. Traps were baited with Atlantic menhaden, *Brevoortia tyrannus*, and video cameras were set to record before deployment. Camera-traps were deployed at randomly selected stations at least 200 meters apart on suspected or known hardbottom habitats, and left to soak for approximately 90 minutes. Camera-traps were most often deployed in sets of six. A CTD cast (see environmental data collection) was conducted during the 90-minute soak time for each trap set. Fish catches were processed after trap retrieval. All fish were counted,

weighed, and measured to the nearest millimeter. Individuals of select species (e.g., species in the snapper-grouper complex) were further processed for additional lengths and biological samples (otoliths, gonads, and DNA). Video files were downloaded and backed up on media storage devices. Biological samples were sent to the Marine Resources Monitoring, Assessment, and Prediction (MARMAP) Program laboratory for processing, and video files were brought to the NMFS Beaufort laboratory for further processing and analysis.

Environmental Data Collection

Environmental data were collected with a Seabird “Conductivity, Temperature and Depth” instrument package (CTD; model SBE 25) and Scientific Computer System software (SCS; version 4). CTD casts were conducted near the middle of each camera-trap soak period; instruments were lowered to within 2 meters of the bottom. Numerous water profile measurements were collected, including temperature (°C), salinity (psu), dissolved oxygen (mg/L), and turbidity (% transmission). CTD data were archived for further processing at the Beaufort laboratory. SCS software was used to collect specific information for each fishing and CTD event, including soak time/cast duration as well as start and end latitude, longitude, and depth (m).

SURVEY RESULTS

Camera-Trap Sampling

101 stations were sampled with camera-trap gear (Table 1, Figure 2).

Environmental Data Collection

18 CTD casts were conducted during the cruise (Table 1, Figure 2). CTD data will be processed back at the lab using Seabird SBE Data Processing software (version 7.2), and archived in a database at the NMFS–Beaufort Laboratory for future analysis.

Table 1. Summary of station coordinates, depth (m), date and time for each fishing event (camera-trap, Gear=324) and CTD cast (Gear=298) conducted on the SH-12-35 survey. Times were recorded in Coordinated Universal Time (UTC).

Collection	Gear ID	Date	Start Time	Start Latitude	Start Longitude	Start Depth
123616	324	9/19/2012	11:59	31.40	-80.89	17
123617	324	9/19/2012	12:31	31.39	-80.89	18
123618	324	9/19/2012	13:05	31.39	-80.89	19
123619	298	9/19/2012	12:36	31.39	-80.88	18
123620	324	9/19/2012	13:50	31.39	-80.89	18
123621	324	9/19/2012	14:42	31.38	-80.89	20
123622	324	9/19/2012	15:59	31.39	-80.90	19
123623	324	9/19/2012	16:50	31.38	-80.89	20
123624	324	9/19/2012	17:25	31.38	-80.89	19
123625	324	9/19/2012	18:26	31.38	-80.89	19
123626	324	9/19/2012	19:14	31.37	-80.89	18
123627	324	9/19/2012	20:07	31.37	-80.90	17
123628	324	9/19/2012	20:51	31.36	-80.89	18
123629	298	9/19/2012	23:12	31.37	-80.90	18
123630	324	9/20/2012	11:49	31.58	-80.81	19
123631	324	9/20/2012	11:55	31.59	-80.81	19
123632	324	9/20/2012	12:03	31.59	-80.80	20
123633	324	9/20/2012	12:09	31.60	-80.80	19
123634	324	9/20/2012	12:18	31.59	-80.79	19
123635	324	9/20/2012	12:22	31.60	-80.79	19
123636	298	9/20/2012	12:30	31.59	-80.79	20
123637	324	9/20/2012	20:24	31.12	-79.92	53
123638	324	9/20/2012	20:29	31.12	-79.92	48
123639	324	9/20/2012	20:35	31.11	-79.92	57
123640	324	9/20/2012	20:43	31.10	-79.92	57
123641	324	9/20/2012	20:49	31.10	-79.93	50
123642	324	9/20/2012	20:54	31.10	-79.93	52
123643	298	9/20/2012	21:10	31.11	-79.92	59
123644	324	9/21/2012	12:11	30.35	-80.63	34
123645	324	9/21/2012	12:14	30.35	-80.63	35
123646	324	9/21/2012	12:21	30.35	-80.63	37
123647	324	9/21/2012	12:31	30.35	-80.61	35
123648	298	9/21/2012	12:47	30.35	-80.61	34
123649	324	9/21/2012	16:07	30.36	-80.35	43
123650	324	9/21/2012	16:13	30.36	-80.35	43

123651	324	9/21/2012	16:25	30.36	-80.34	43
123652	324	9/21/2012	16:34	30.37	-80.34	43
123653	324	9/21/2012	16:40	30.37	-80.34	43
123654	324	9/21/2012	16:47	30.37	-80.34	43
123655	298	9/21/2012	16:54	30.38	-80.33	44
123656	324	9/21/2012	19:45	30.37	-80.22	58
123657	324	9/21/2012	19:54	30.38	-80.22	56
123658	324	9/21/2012	20:01	30.39	-80.22	64
123659	324	9/21/2012	20:05	30.39	-80.22	58
123660	324	9/21/2012	20:12	30.40	-80.22	62
123661	324	9/21/2012	20:15	30.40	-80.21	62
123662	298	9/21/2012	20:22	30.40	-80.21	64
123663	324	9/22/2012	12:09	30.23	-80.47	39
123664	324	9/22/2012	12:14	30.23	-80.46	39
123665	324	9/22/2012	12:22	30.23	-80.46	39
123666	324	9/22/2012	12:25	30.23	-80.46	38
123667	324	9/22/2012	12:34	30.23	-80.46	38
123668	324	9/22/2012	12:42	30.23	-80.45	38
123669	298	9/22/2012	12:49	30.23	-80.45	39
123670	324	9/22/2012	15:06	30.23	-80.46	40
123671	324	9/22/2012	15:09	30.23	-80.45	40
123672	324	9/22/2012	15:15	30.23	-80.45	39
123673	324	9/22/2012	15:17	30.23	-80.45	39
123674	324	9/22/2012	15:21	30.23	-80.45	40
123675	324	9/22/2012	15:28	30.23	-80.45	39
123676	298	9/22/2012	15:38	30.23	-80.45	40
123677	324	9/23/2012	12:19	29.15	-80.82	21
123678	324	9/23/2012	12:22	29.15	-80.83	22
123679	324	9/23/2012	12:30	29.16	-80.82	21
123680	324	9/23/2012	12:36	29.16	-80.82	21
123681	324	9/23/2012	12:41	29.16	-80.83	22
123682	324	9/23/2012	12:46	29.16	-80.83	22
123683	298	9/23/2012	12:55	29.16	-80.83	21
123684	324	9/23/2012	15:58	29.22	-80.69	24
123685	324	9/23/2012	16:03	29.23	-80.69	26
123686	324	9/23/2012	16:07	29.23	-80.69	26
123687	324	9/23/2012	16:12	29.23	-80.69	26
123688	324	9/23/2012	16:15	29.23	-80.70	25
123689	324	9/23/2012	16:25	29.23	-80.70	24
123690	298	9/23/2012	16:30	29.23	-80.70	25
123691	324	9/23/2012	19:07	29.21	-80.53	28

123692	324	9/23/2012	19:17	29.20	-80.52	26
123693	324	9/23/2012	19:26	29.18	-80.52	26
123694	324	9/23/2012	19:29	29.18	-80.52	26
123695	324	9/23/2012	19:32	29.17	-80.52	28
123696	324	9/23/2012	19:37	29.17	-80.52	26
123697	298	9/23/2012	20:01	29.21	-80.53	29
123698	324	9/24/2012	12:26	28.84	-80.65	19
123699	324	9/24/2012	12:30	28.84	-80.65	19
123700	324	9/24/2012	12:37	28.84	-80.66	19
123701	324	9/24/2012	12:43	28.83	-80.67	18
123702	324	9/24/2012	12:56	28.83	-80.65	18
123703	324	9/24/2012	13:00	28.83	-80.65	19
123704	298	9/24/2012	13:10	28.83	-80.64	19
123705	324	9/24/2012	17:14	29.11	-80.42	31
123706	324	9/24/2012	17:18	29.11	-80.43	29
123707	324	9/24/2012	17:22	29.11	-80.43	31
123708	324	9/24/2012	17:26	29.12	-80.43	30
123709	324	9/24/2012	17:30	29.13	-80.43	30
123710	324	9/24/2012	17:35	29.13	-80.43	31
123711	298	9/24/2012	17:41	29.13	-80.43	32
123712	324	9/24/2012	19:31	29.10	-80.42	30
123713	324	9/24/2012	19:38	29.11	-80.41	31
123714	324	9/24/2012	19:52	29.12	-80.41	31
123715	324	9/24/2012	19:58	29.12	-80.41	30
123716	324	9/24/2012	20:02	29.12	-80.41	31
123717	324	9/24/2012	20:06	29.13	-80.41	31
123718	298	9/24/2012	20:11	29.12	-80.41	32
123719	324	9/25/2012	12:04	29.49	-81.04	20
123720	324	9/25/2012	12:19	29.48	-81.06	19
123721	324	9/25/2012	12:24	29.48	-81.06	21
123722	324	9/25/2012	12:28	29.48	-81.06	20
123723	298	9/25/2012	12:41	29.48	-81.05	20
123724	324	9/25/2012	15:11	29.51	-80.94	23
123725	324	9/25/2012	15:14	29.51	-80.94	22
123726	324	9/25/2012	15:29	29.51	-80.97	23
123727	324	9/25/2012	15:34	29.51	-80.97	22
123728	298	9/25/2012	15:42	29.51	-80.97	23
123729	324	9/26/2012	12:18	29.70	-80.86	26
123730	324	9/26/2012	12:21	29.70	-80.86	26
123731	324	9/26/2012	12:23	29.70	-80.86	25
123732	324	9/26/2012	12:26	29.70	-80.87	26

123733	324	9/26/2012	12:29	29.70	-80.87	24
123734	298	9/26/2012	12:44	29.69	-80.85	26



Figure 1. Chevron trap with video cameras attached over the nose and mouth positions.

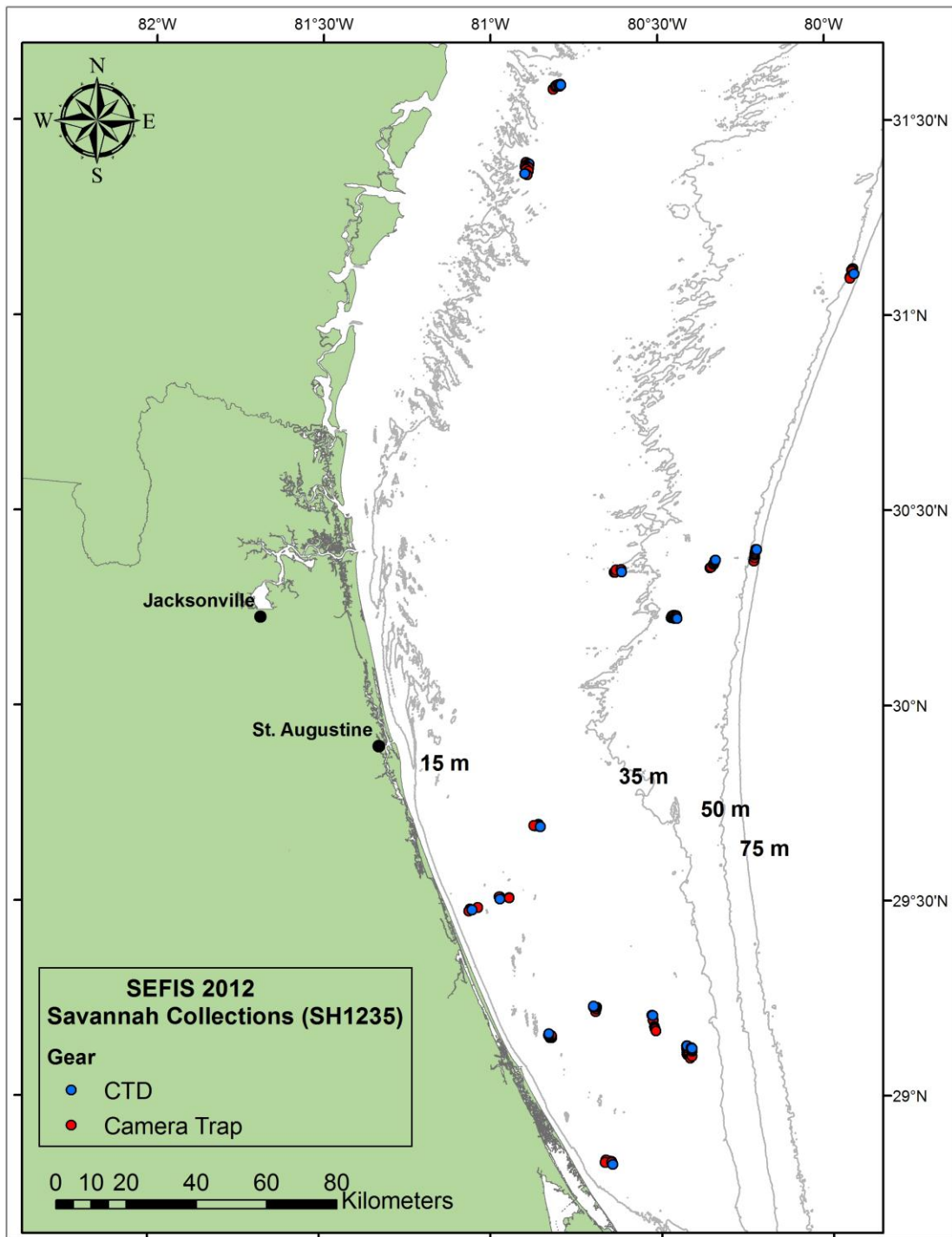


Figure 2. Locations of stations sampled with camera-trap and CTD gear on the SH-12-35 survey. Note that symbols overlap in many cases.

Cruise Report Prepared by: Zeb Schobernd, Nate Bacheler, and Christina Schobernd

Note that the use of trade, product, industry, or firm names, products, software, or models, whether commercially available or not, is for informative purposes only and does not constitute an endorsement by the U.S. Government or the National Oceanic and Atmospheric Administration.